

N00213.AR.000069
NAS KEY WEST
5090.3a

RESOURCE CONSERVATION AND RECOVERY ACT FACILITY ASSESSMENT REPORT
NAS KEY WEST FL
3/30/1989
U S EPA REGION IV

RCRA FACILITY ASSESSMENT REPORT

US NAVAL AIR STATION
BOCA CHICA KEY
KEY WEST, FLORIDA 33040

EPA I.D. NO. FL6 170 022 952

JANE STONE
US EPA, REGION IV
ATLANTA, GEORGIA
MAR 30 1989

I. EXECUTIVE SUMMARY

The purpose of this RCRA Facility Assessment (RFA) is to identify Solid Waste Management Units (SWMUs) that are present at the Naval Air Station - Boca Chica, Florida facility (NAS- Boca Chica) and determine the need for RCRA Facility Investigation (RFI) activity.

On April 12 through April 14, 1988, a Visual Site Inspection (VSI) was conducted at the NAS-Boca Chica facility as part of the RFA process. At that time, seven (7) SWMUs were identified (figure 1), including the area around the regulated hazardous waste unit. Six (6) of the units are recommended for an RFI under a HSWA permit.

II. BACKGROUND

The US Naval Air Station, Key West, Florida (NAS-Key West) is a naval base that operates and maintains naval aircraft for the purpose of military personnel training. The waste streams found at the site are a result of these operations. They generate hazardous waste resulting from degreasing, minor painting and stripping of aircraft parts. The regulated hazardous waste unit at the Boca Chica facility is a drum storage unit. It is located on Boca Chica key, I.D. No. FL6 170 022 952 and the SWMUs addressed in this RFA are units found at this Boca Chica facility.

NAS-Key West is located approximately 150 miles south west of Miami on Highway US 1 on the last major island of the Florida Keys. The area has an average annual rainfall of 40 inches. The area is flat and low with ground elevations from 0 to 15 feet mean sea level.

Geology

All of the Lower Keys are composed of Miami Oolite which consists of calcium carbonate and tiny oolids or spherical calcareans grains. Key Largo limestone underlies the Miami Oolite. The Miami Oolite is approximately 20 feet thick at Key West. It is a porous formation containing poor quality ground water. The underlying Key Largo formation is permeable and yields only poor quality water. The Key Largo limestone is approximately 180 feet thick in this area. The original soils in the area are shallow more over limerocks although many areas of NAS Key West have been filled and graded.

Hydrology

The surface water regime in the Florida Keys is dominated by the surrounding saltwater bodies, the Atlantic Ocean and the Gulf of Mexico. The Florida Department of Environmental Regulation (FDER) classifies surface waters in the Keys as Outstanding Florida Waters - Recreational - Management of Fish and Wildlife. Also in the immediate area of NAS Key West are the Great White Heron Wildlife Refuge and the Key West National Wildlife Refuge, which are classified by DER as outstanding Florida waters and are afforded the highest protection by the State. These waters are considered to be of exceptional recreational and ecological significance.

Although the Keys are underlain by highly transmissive limestone aquifers, most ground water is brackish, saline or hypersaline. In the Key West area, there are no large quantity drinking wells. Potable water is obtained by rainwater catchment, a three million gallon per day desalination plant or imported by pipeline from the Florida Keys Aquaduct Authority via a 130 mile pipeline from the mainland. There are no freshwater wells at NAS Key West.

Migration Potential

There is potential for contamination migration to surface waters in the Key West area due to the porous nature of Miami Oolite and the underlying Key Largo limestone. Seawaters under tidal influence move freely in and out of the limestone, creating a flushing action for contaminant dispersal into the large volume of tidal waters. The Atlantic Ocean and Gulf of Mexico and the significant tidal flushing involved might tend to limit the potential impacts to these areas.

Potential Contaminant Receptors

Surface waters in the Keys are classified as Coastal Waters - Recreation-Propagation and Management of Fish and Wildlife. Common activities in the Key West area waters include commercial and recreational shell fishing, boating, and swimming. These waters support the richest coral reefs in the continental United States.

III. ONGOING/PLANNED CORRECTIVE ACTIONS

There has not been, and are no planned corrective actions to be conducted at the SWMUs identified in this report. Investigations and any subsequent corrective action will be covered in an RFI plan, RFI report and possibly Corrective Action required under a future HSWA Permit and/or the Installation Restoration Program (IRP).

IV. DESCRIPTION OF SWMUs

The following Waste Management Units include the Old Hazardous Waste drum storage unit; the new drum storage unit to be permitted and the 6 SWMUs that have been identified at the site (figure 2). The descriptions also include ground water sampling and soil sampling results that have already been accumulated in relation to each SWMU.

A. RCRA Regulated Hazardous Waste Unit

The Main Hazardous Waste Storage Building

The Hazardous Waste regulated unit at the Boca Chica Facility consists of the Main Hazardous Waste Storage Area (see photo #16). The facility is presently closing under an FDER closure permit. In an attempt to clean close NAS-Boca Chica will clean up any contamination found at the old storage facility site.

At the time of the RFA/VSI it was noted that the grounds adjacent to the old storage building may contain contamination caused from transformers stored on pallets on the ground outside. If this area is not addressed by the closure activities required by the closure permit it must be addressed as a SWMU under the HSWA permit. Thus it would be included in the RFI procedures.

A new drum storage building has been constructed near the present interim status storage area under an FDER construction permit. The FDER storage permit that was issued September 7, 1989 along with an EPA HSWA permit will constitute a complete RCRA permit for the Boca Chica Key facility. There are also 13 other satellite accumulation areas that store hazardous waste prior to the waste being taken to the main Hazardous Waste Storage Area.

B. Solid Waste Management Units

1. Site #4-Open Disposal Area

The Open Disposal area on Boca Chic operated from 1942 to the mid 1960s. This area was the primary landfill for the air station. It was used as an open disposal and burning area. The type of materials disposed here include refuse, hydraulic fluids, waste oil, waste paints and thinners, solvents (toluene, xylene, MEK, TMIK, PD-680). Approximately 2,600 tons of waste were disposed of and burned at this site annually. According to the Navy's March 1987, "Assessment of Potential Groundwater Pollution" the waste disposed here may not have been completely destroyed during the burning operation used.

There are 4 groundwater monitoring wells located at the site. (KWM05, KWM06, KWM07, and KWM08). There is a tidal mangrove area (wetland) to the east, northeast and north of the area. The Atlantic Ocean is just south/southeast of the unit. Due to the proximity of the ocean, the water level in the wells are probably influenced by the tide.

Results of the groundwater analysis indicate that the totally dissolved solid (TDS) ranged from 24000 to 42000 ppm, no acid extractables, pesticides, or PCB were detected. Several VOCs were detected at 35 ppb. Several base-neutral extractable compounds also were detected in concentrations of less than 10 ppb, except for naphthalene (34 ppb). Of the metals analyzed, concentrations of mercury (0.01 ppm), copper (0.06 ppm) and arsenic (0.065 ppm) were above detection limits.

Two soil samples, collected adjacent to the abandoned tanks at the locations given in Figure 3, were analyzed for RCRA metals by Extraction Procedure (EP) Toxicity (Appendix C, Section 3). Concentrations of these metals all were below the detection limits.

2. Site 5 - DDT Mixing Area

DDT Mixing operations were conducted on this site in Building 915 (Demolished in 1982) from the 1940's to the early 1970's. Two tanks were located at the site. One was a 500 gallon mixing tank and one was 1000 gallon storage tank. During removal of these two above-ground tanks some spillage reportedly occurred.

According to the soil sampling analysis reported in the March 1987 Verification Study soil samples contained pesticides throughout the three-foot sampling range (Table 1). This RFA reflects the findings of the March 1987 Verification Study in that further soil sampling is needed and will be required by the RFI. Subplots 3, 4, and 6 need to be looked at and groundwater monitoring wells need to be installed near the unit to monitor DDT, it's compounds and other pesticides in the groundwater.

3. Site #10 - Fire Fighting Training Area

The Fire Fighting Training Area shown in Figure 4 is located immediately west of the southern blimp pad. There are two large burn circles that contain junk vehicles and aircraft that are used for fire fighting training. JP-5, waste oils or hydraulic fluids are used at the site as fuel to ignite the junk vehicles. The area shows visible evidence of burning and oil staining (see photos 7, 8, 11) and there was a strong hydrocarbon odor. There was virtually no berm around the area at the time of the RFA site visit. This suggested a great potential for runoff. Since the time of the site visit NAS has informed EPA that they now have six (6) inch berm.

Two shallow monitoring wells are located at the site (KWM 18 and KWM 19) (see photos 9,10). The well caps are severely corroded and the well heads were below ground level and covered with water.

There were a few bloated drums noted in the area and an old truck nearby used for fuel storage. NAS has informed EPA that they have removed the drums since the time of the site visit.

According to the March 1987 Verification Study water quality samples were collected from the monitoring wells and analyzed for Volatile Organic Compounds (VOCs), PCBs and Total Dissolved Solids (TDS). Well KWM18 showed 2200 ppm TDS and KWM19 showed 38000 ppm TDS. No PCBs were detected and only methylene chloride was detected by VOC analysis.

4. Air Craft Intermediate Maintenance Department (AIMD) Bldg. A980 Drainage drum outside Electronic Parts Cleaning Building.

In the past, two (2) plastic drums were buried in the ground just outside the electronic parts cleaning building. The drums were connected to pipes that were connected to floor drains inside of the building. These drums were in operation from 1981-1987. The drums are no longer connected to the inside drains (see photo 6). The waste in the floor drains is now collected in drums and taken to a temporary drum storage area.

The area directly surrounding the drum in photo #6 has been dug up to expose the entire drum. Stains have been noted around the drum area. At the time of the RFA, NAS indicated that some sampling was currently being done by a contractor.

5. Waste Water Treatment Plant

It was reported to EPA at the time of the RFA that NAS has been dumping Naptha 238 degreasers and solvents in the water treatment plant. This in turn has caused problems for the biological treatment of the waste water treatment sludge.

At the time of the RFA there was a question as to whether or not there is a concrete bottom under the sludge drying beds at the NAS Boca Chica Waste Water Treatment Facility. Drawings of the bed design do not indicate a concrete bed is present. Without a concrete bottom the potential for a release to the environment is increased.

NAS has sampled sludge and the results show that further RFI work is not necessary at this time. If problems arise in the future with this unit it may need to be investigated again. NAS should also supply EPA with the formulation of the aircraft washrack solvent and any other solvent that goes into the waste water treatment plant.

6. AIMD Corrosion Control-Bead Blasting Area

The corrosion control area has less than 90 day storage area that hold waste paints and solvents. These areas are included in the satellite accumulation sites that accumulate wastes to be taken to the main hazardous waste storage facility.

Outside of the corrosion control area is the sandblasting area. The material used in the sandblasting process is piled on the bare ground uncovered. NAS sampled the material and according to June 29, 1987, results from Environmental Testing and Consulting Inc.'s analysis neither the new material or the used material exhibit EP toxicity. The used material does show a definite increase in Barium, Cadmium, Chromium, and Lead from the new unused material.

Soil sampling and surface water sampling should be done in the area to see what the effects have been on the environment from this unit. Soil and surface water sampling has been done in the past and those results were provided to EPA by NAS. These results were not conclusive to rule out further investigation of this SWMU. The results were from 1984 and the detection levels used did not clearly show whether there was a potential threat to the environment from the unit.

V. FINDINGS/CONCLUSIONS

Further investigation of releases is needed at the following Naval Air Station-Boca Chica, Florida waste management units. Those listed under B denote the Solid Waste Management Units currently found at the site that need further investigation.

- A. The Main RCRA Hazardous Waste Storage Area
- B.
 - 1. Site #4-Open Disposal Area
 - 2. Site #5-Boca Chica DDT Mixing Area
 - 3. Site #10-Fire Fighting Training Area
 - 4. AIMD Bldg. A980-Drainage Drum
 - 5. AIMD Corrosion Control-Bead Blasting Area

VI. RECOMMENDATION

Five (5) of the SWMUs included in the RFA should be included in the RFI work plan required by the final HSWA permit. Any contamination found adjacent to the Old Hazardous Waste Storage Unit at the Main RCRA Hazardous Waste Storage Area that is not addressed under closure of the unit must be addressed as release from a SWMU.

REFERENCES

1. Initial Assessment Study - Naval Air Station, Key West, Florida - May, 1985
Prepared by Envirodyne Engineers, Inc. for U.S. Navy.
2. Verification Study - Assessment of Potential Groundwater Pollution at the Naval Air Station Key West, Florida - March 1987.
Prepared by Geraghty and Miller, Inc. for U.S. Navy.
3. "Visual Site Inspection, RCRA Facility Assessment", Memo, EPA Region IV August 25, 1988.
4. Administrative Record for Naval Air Station - Key West, Florida, EPA Region IV, RCRA Branch.
5. Letter dated January 23, 1989 from Dept. of the Navy to EPA regarding the draft RFA, and all attached lab results.

Table 1. Summary of DDT^{1/}
Concentrations in Soil Samples from Site 5

(Concentrations in ppm)

Depth (ft)	Plots					
	P-1	P-2	P-3	P-4	P-5	P-6
0-1	BDL ^{2/}	0.0054	7.40 ^{3/}	2.667	936.00 ^{6/}	89.0
1-2	BDL	BDL	4.99 ^{4/}	0.0943	81.00 ^{7/}	0.76
2-3	BDL	0.0020	2.74 ^{5/}	2.800	95.00	2.90

1/ DDT and its daughter products DDE and DDD.

2/ BDL means below the laboratory detection limit.

3/ Delta-BHC also detected at 0.290 ppm.

4/ Alpha-BHC (0.12 ppm) and Delta-BHC (0.22 ppm) also detected in samples.

5/ Delta-BHC (0.15 ppm) also detected in samples.

6/ Alpha- (23.0 ppm), Beta- (4.7 ppm), Gamma- (25.0 ppm), and Delta-BHC (27.0 ppm) also detected in samples.

7/ Alpha-BHC (1.6 ppm) and Delta-BHC (1.9 ppm) also detected in samples.

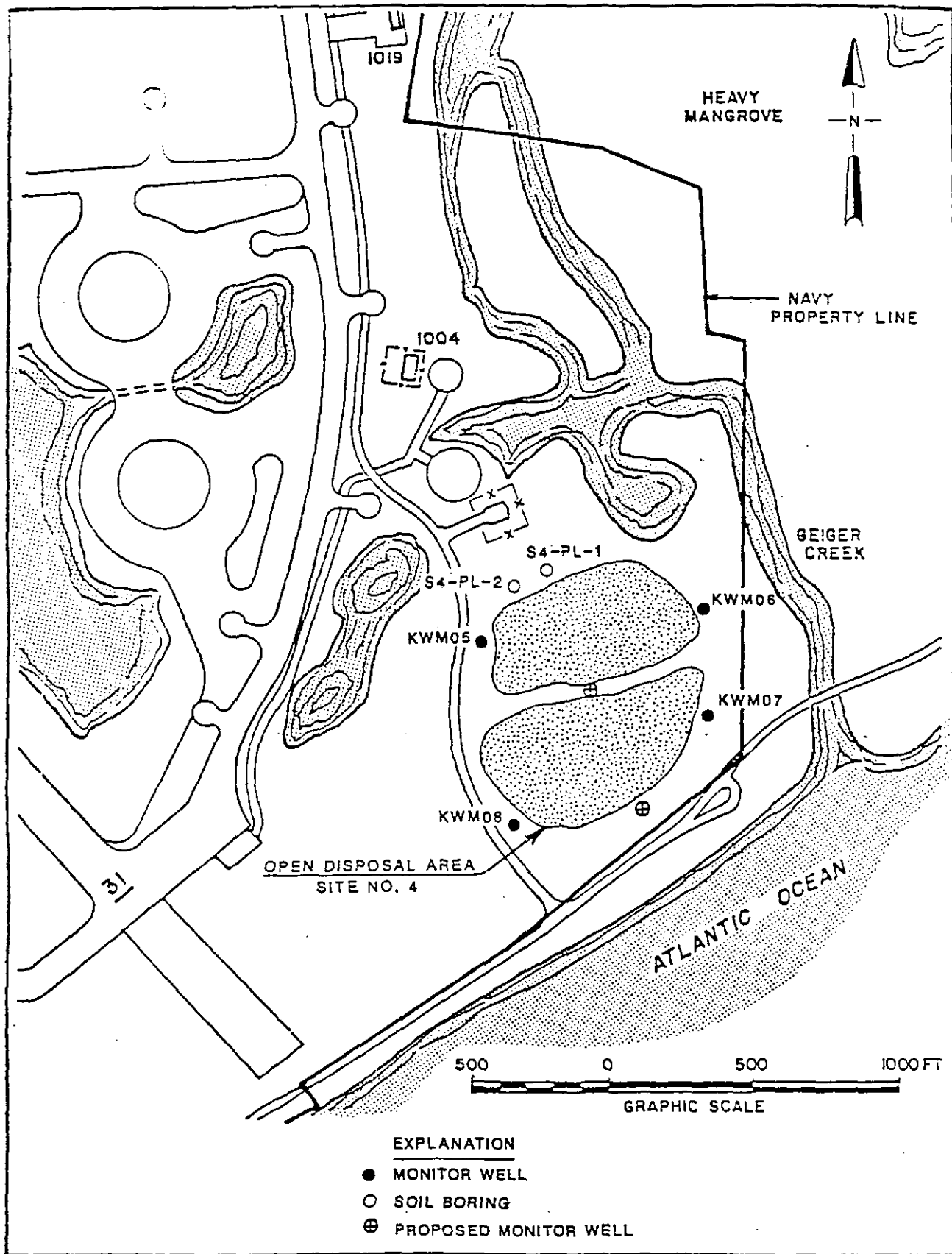


Figure 3. Site Plan Showing Installed and Proposed Monitor-Well Locations at the Open Disposal Area (Site No. 4)

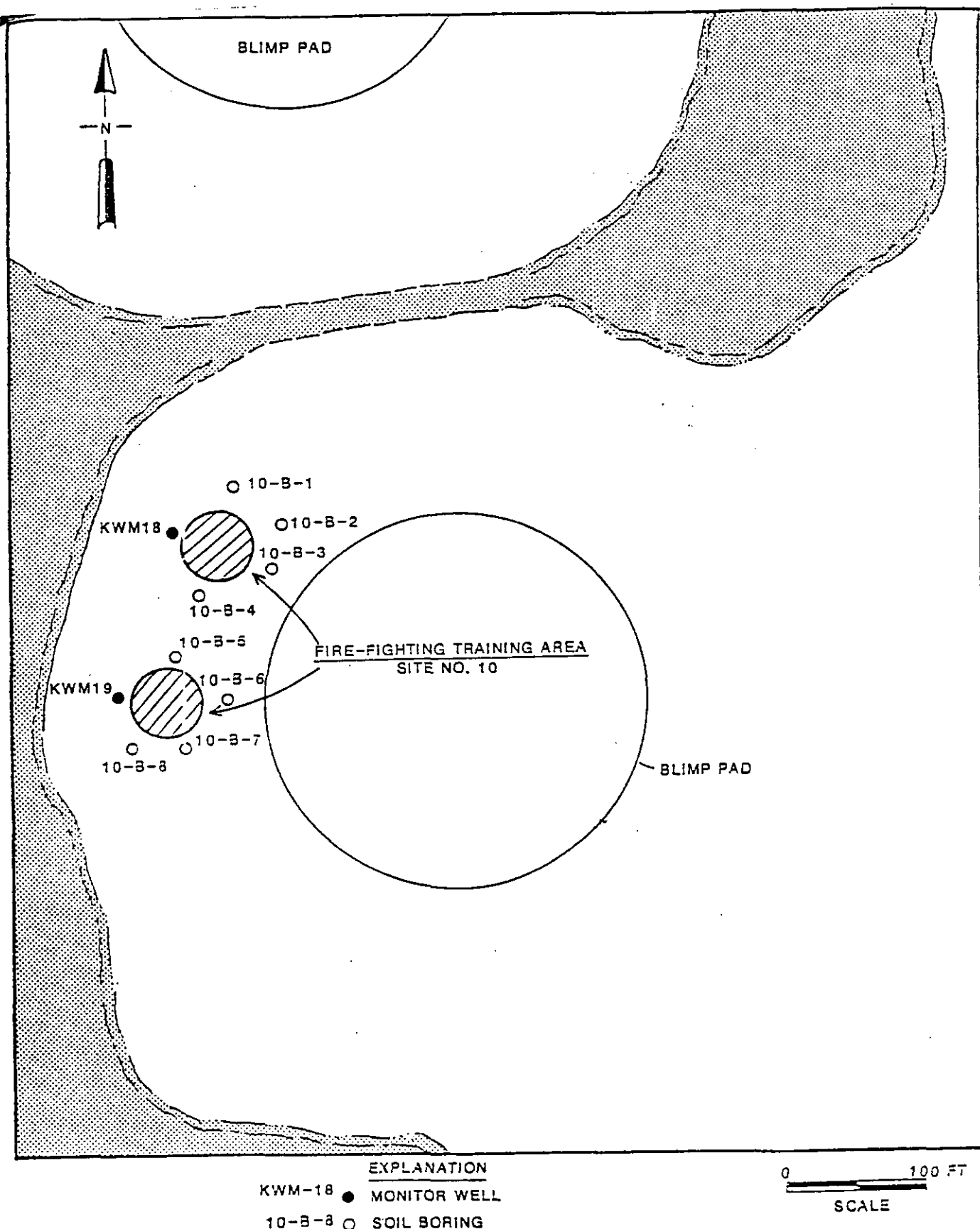


Figure 4. Site Plan Showing Installed Monitor-Well Locations at the Fire-Fighting Training Area (Site No. 10)

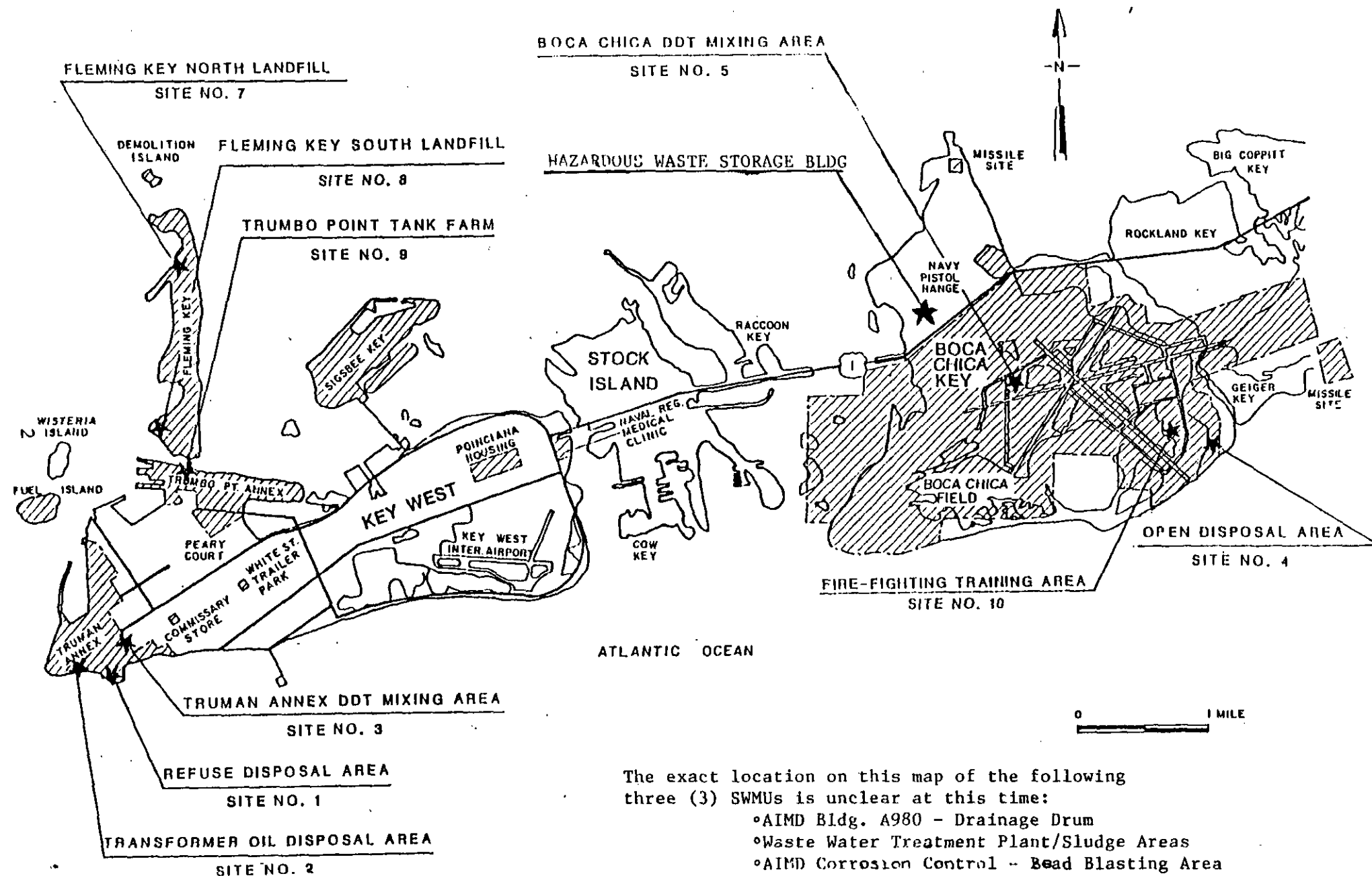


Figure 1. NAS - Boca Chica Solid Waste Management Units (SWMU) and other units inspected during the April 1988 RFA Site Visit.

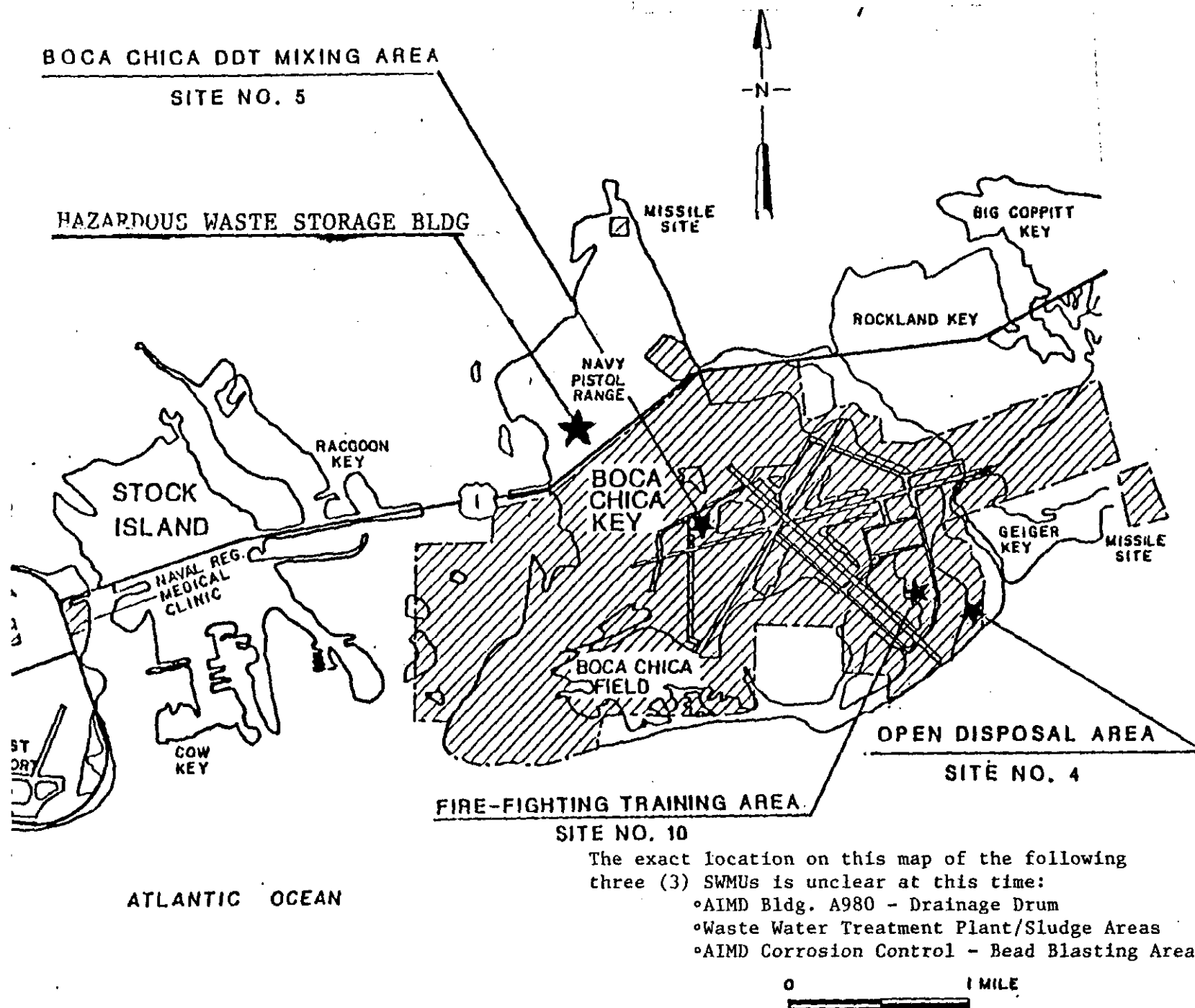


Figure 2. Location of Solid Waste Management Units (SWMUs) at NAS - Boca Chica



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

MEMORANDUM

SUBJECT: Visual Site Inspection, RCRA Facility Assessment
U.S. Naval Air Station, Key West, Florida
EPA I.D. No. FL6 170 022 952

FROM: Environmental Engineer, FL/GA Unit
Waste Engineering Section

TO: Michael J. Hartnett, Chief
Florida/Georgia Unit
Waste Engineering Section

MJH
8/25/88

A site investigation was done at Naval Air Station - Key West on April 12 through April 14, 1988, in order to conduct a RCRA Facility Assessment (RFA). The purpose of the RFA was to:

- Identify and gather information on Solid Waste Management Units (SWMUs);
- Make preliminary determinations regarding known or suspected releases of hazardous waste or hazardous constituents from SWMUs.
- Make determination of the need for further action.

The RFA was performed by Mr. Michael Hartnett (EPA), and Ms. Jane Stone (EPA). Accompanying EPA was Mr. Rabin Prusty (FDER), Mr. Jim Crane (FDER) and Mr. Richard Stross (FDER). NAS representatives included Robert Moser, Cliff Casey, Stephen Covell, and Martin Bushman.

Facility Description:

The US Naval Air Station, Key West (NAS-Key West) is a naval base that operates and maintains naval aircraft for the purpose of military personnel training. The waste streams found at the site are a result of these operations. At this time the only regulated unit at the Boca Chica facility is a drum storage unit. It is located on Boca Chica Key, ID No. FL6 170 022 952 and the SWMUs addressed in the RFA report and HSWA permit will be units found at this Boca Chica facility.

A new drum storage building has been constructed near the present interim status storage area under a FDER construction permit. Construction of the new drum storage building is complete but the building is not yet being used. When the FDER storage permit and the joint EPA HSWA permit are issued the new building will be permitted for greater than 90 day storage and NAS Key West will begin storing drums there.

The air station owns property on Boca Chica Key, Sigsbee Key, Key West, Fleming Key and Demolition Island just north of Fleming key (Figures 2-1 and 2-2). The following is a list of all the areas inspected during the RFA site visit.

Boca Chica Key - SWMU Areas

Site #4 - Open Disposal Area
Site #5 - Boca Chica DDT Mixing Area
Site #10 - Fire Fighting Training Area
AIMD Bldg. A980 - Drainage drum outside Electronic parts cleaning building.
Waste Water Treatment Plant
AIMD Corrosion Control - Bead Blasting Area
Interim Status Drum Storage Area

Fleming Key

Site #7 - North Landfill
Site #8 - South Landfill

Key West

°Truman Annex
Site #1 - Refuse Disposal Area
Site #2 - Transformer Oil Disposal Area
Site #3 - DDT Mixing Area

°Trumbo Point Annex
Site #19 - Tank Farm

Sigsbee Key was not visited by EPA during the April 1988 RFA. According to the Navy's May 1985, Initial Assessment Study, the Navy feels that Site #6 Dredgers Key (Sigsbee) Refuse Disposal Area is judged to not pose a potential threat to human health and the environment and further study has not been recommended. The Navy says in their report that the wastes reportedly disposed there are non-hazardous. Sigsbee is not included under Boca Chica's EPA ID number.

Demolition Key was also not visited during the RFA site inspection. The present status of this site is not known, but since the time of the RFA visit, NAS - Key West has assigned Demolition Key the same EPA ID number as that of Trumbo Point, therefore, this area is also not included under the Boca Chica I.D. number.

The SWMUs that will be included in the HSWA permit must be included under the same EPA ID number as the regulated storage area. Fleming Key, Key West, Trumbo Point and Boca Chica all have different EPA ID numbers. The RFA report will include those Solid Waste Management Units on Boca Chica Key.

Jane Stone *(Signature)*

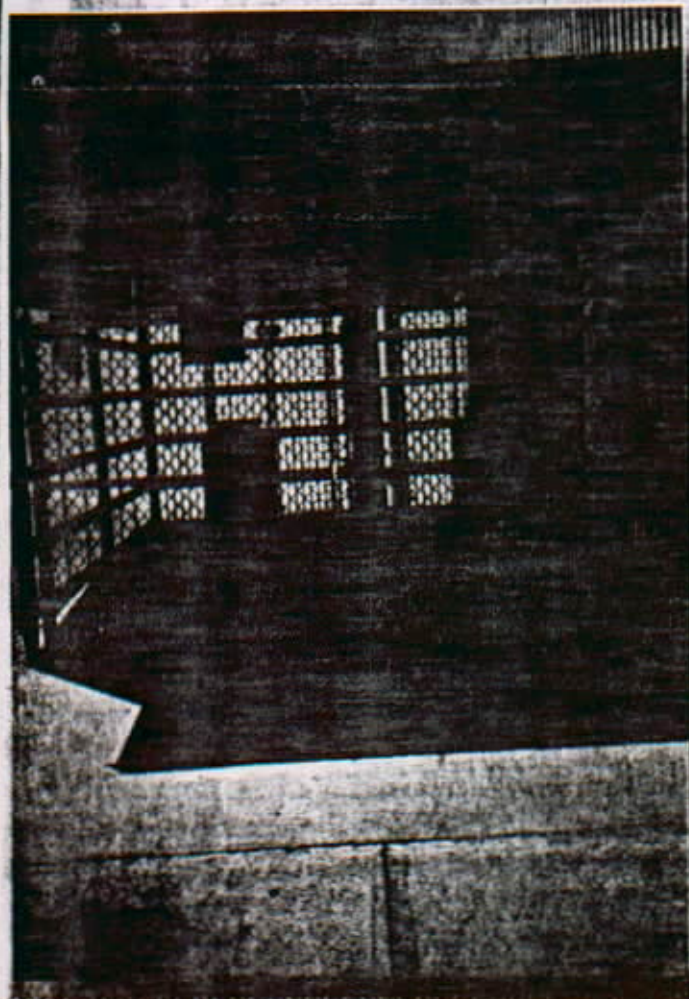
cc: Doug McCurry
Allan Antley



1 AIMD Corrosion Control HW Storage
2 AIMD Corrosion Control HW Storage

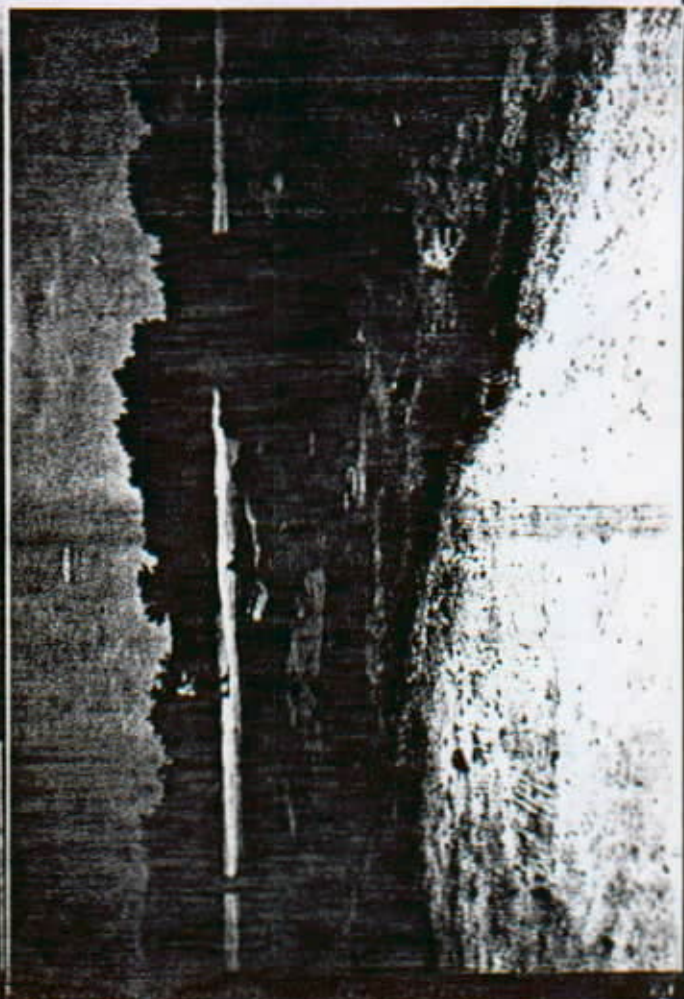
3 AIMD Corrosion Control Sandblasting
4 AIMD Corrosion Control Sandblasting





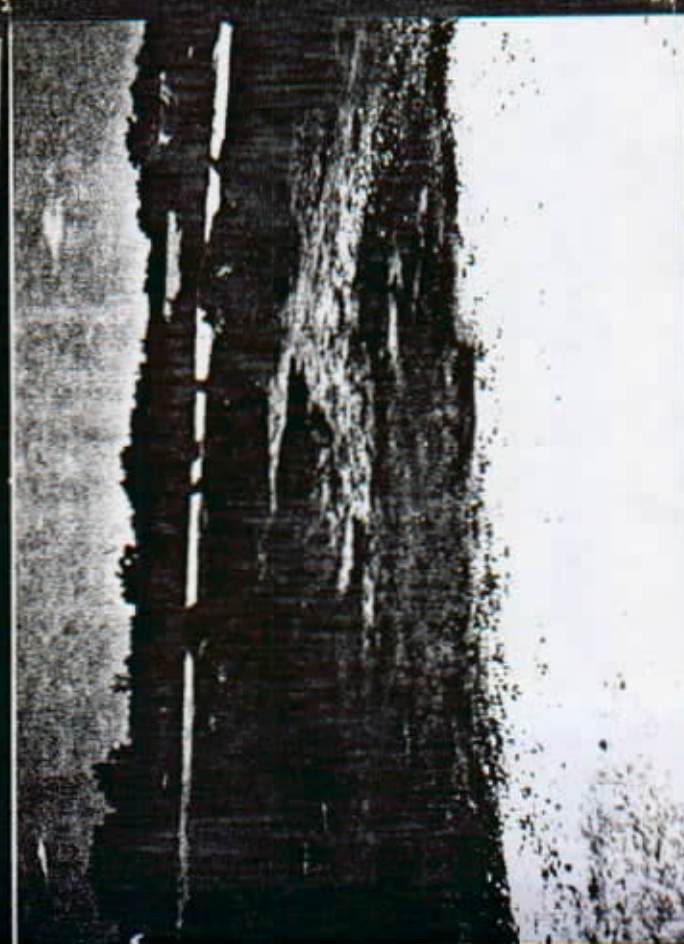
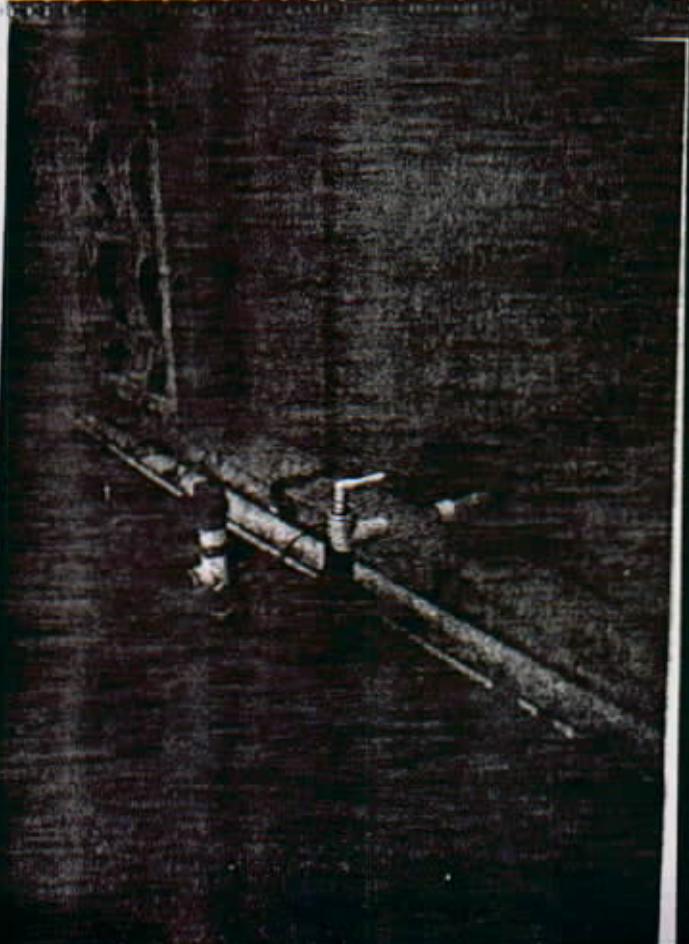
5 AIMD VF45 HW Storage Area

6 AIMD Building A980 Drum



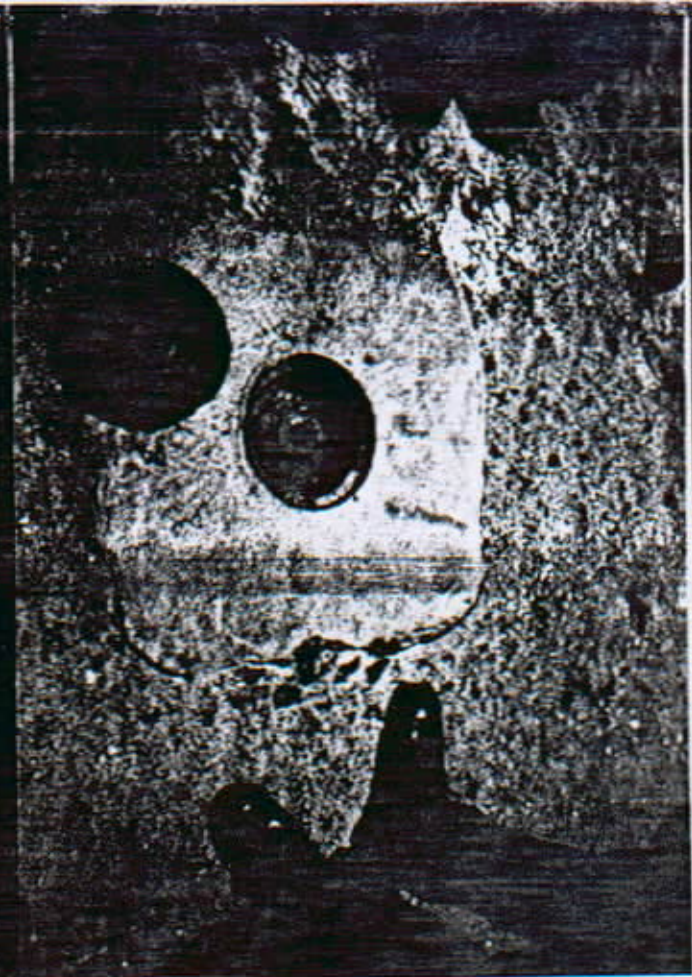
7 Fire Fighting Area

8 Fire Fighting Area



9 N

10 S



9 Northernmost well at Fire Fighting Area

10 Southernmost well at Fire Fighting Area

11 Firetruck at Fire Fighting Area

12 Open Disposal Area Site 4 on Boca Chico





13 Open Disposal Area Site 4 on BocaChica



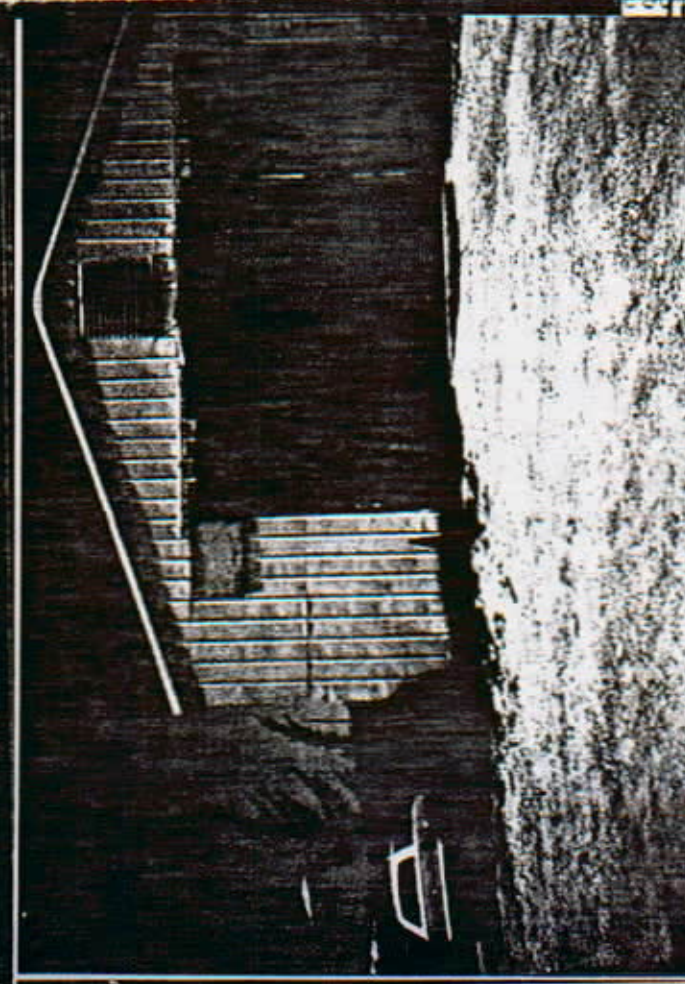
15 Open Disposal Area Site 4 on BocaChica

14 Open Disposal Area Site 4 on BocaChica

16 Old Drum Storage Area IS Storage

17 Old

18 Sea

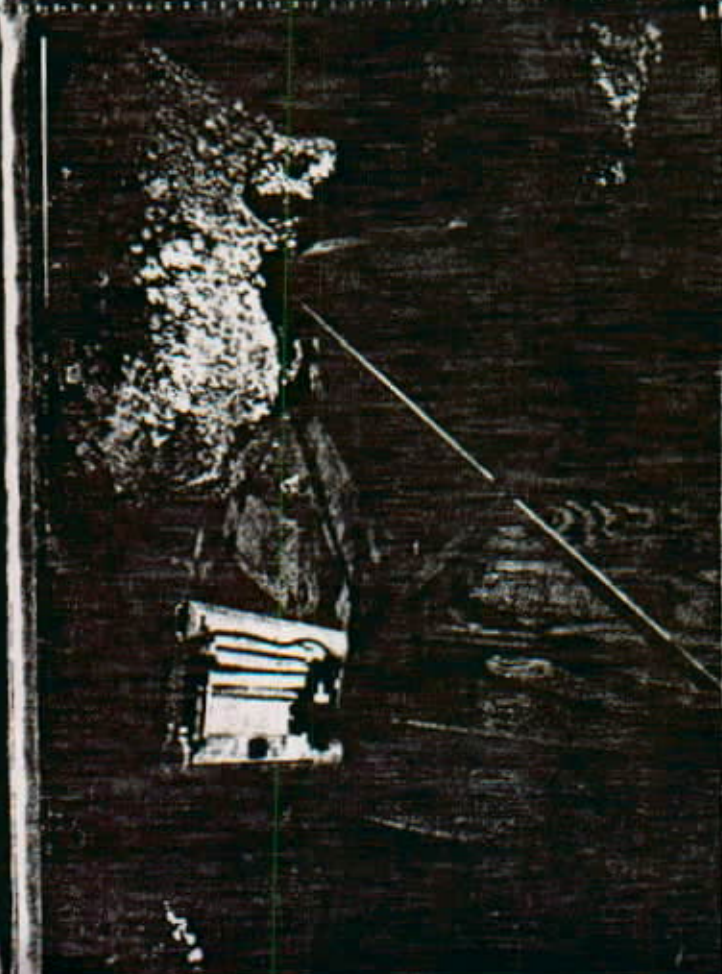
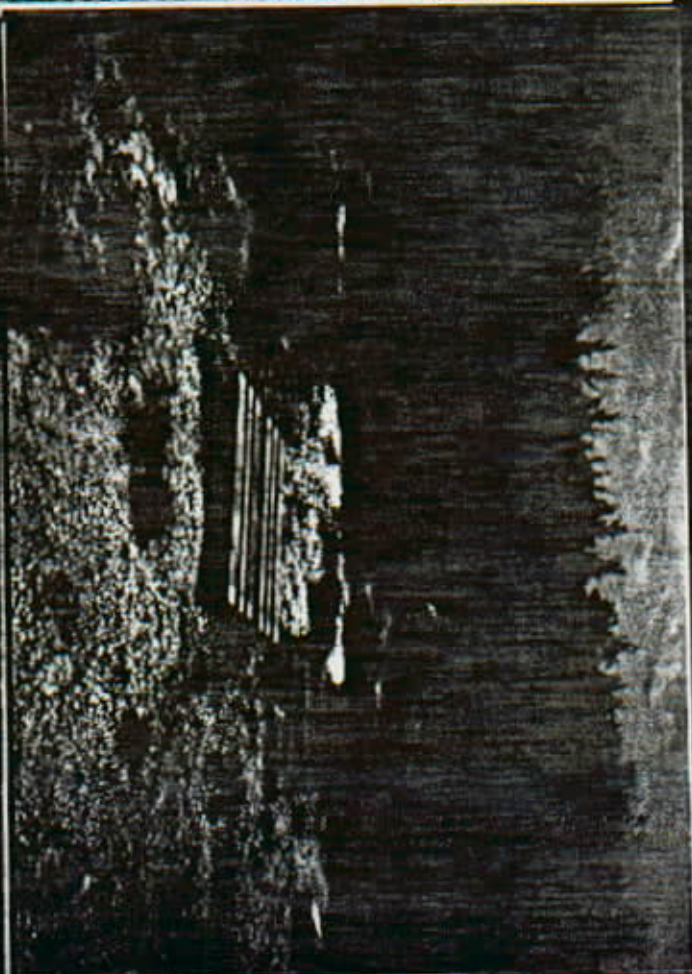




17 Old Drum Storage Area-Transformers



18 Sea Wall at Fuel Tank Farm
19 Sea Wall at Fuel Tank Farm
20 Sea Wall at Fuel Tank Farm





21 Sea Wall at Fuel Tank Farm

22 Sea Wall at Fuel Tank Farm



23 Truman Annex Refuge Disposal Site

24 Truman Annex Chromium Area



25 Fleming Key-S. Landfill (Contents Unknown)



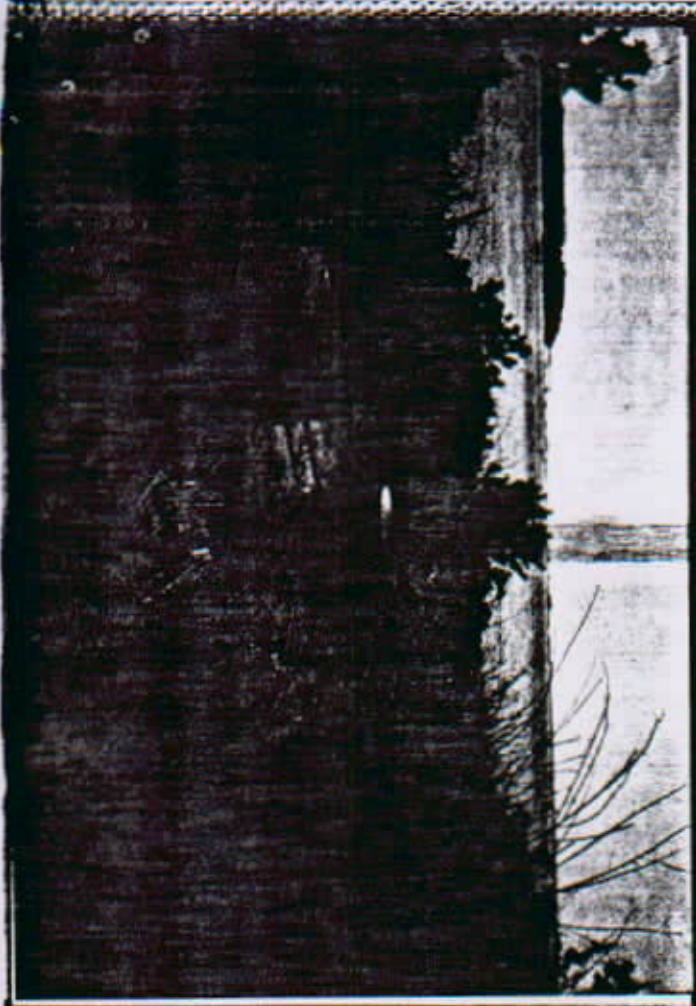
26 Fleming Key-South Landfill



27 Fleming Key-South Landfill



28 Fleming Key-South Landfill





29 Fleming Key-S. Landfill(Lithium Batteries)

30 Fleming Key-S. Landfill (Anchors)



31 Fleming Key-S. Landfill(Lithium Batteries)

32 FlemingKey-S.Landfill(Lithium Battery)

33 F1

34 F1





35 Fleming Key-S. Landfill (Paint Cans)



36 Fleming Key-South Landfill



34 Fleming Key-S. Landfill Area



Batteries)

Battery)



37 Fleming Key-S.Landfill(Empty Drum)

38 Fleming Key-S.Landfill(Battery)



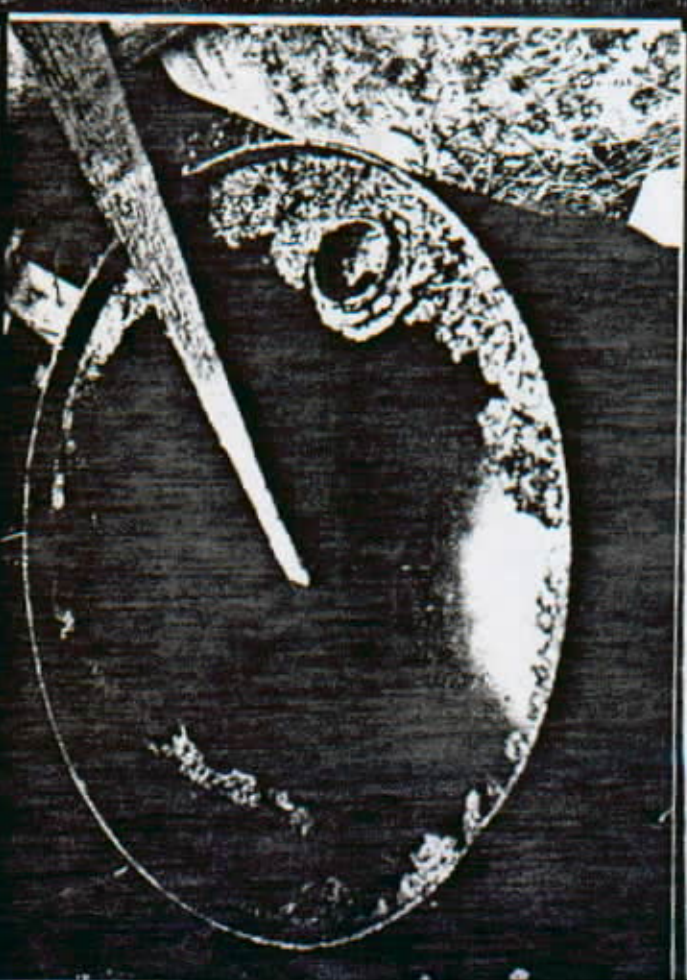
39 Fleming Key-S.Landfill(Paint Thinner)

40 Fleming Key-S.Landfill(Paint Wastes)



41 Fleming

42 Fleming



(Inner)
sites)

41 Fleming Key-South Landfill
42 Fleming Key-South Landfill

